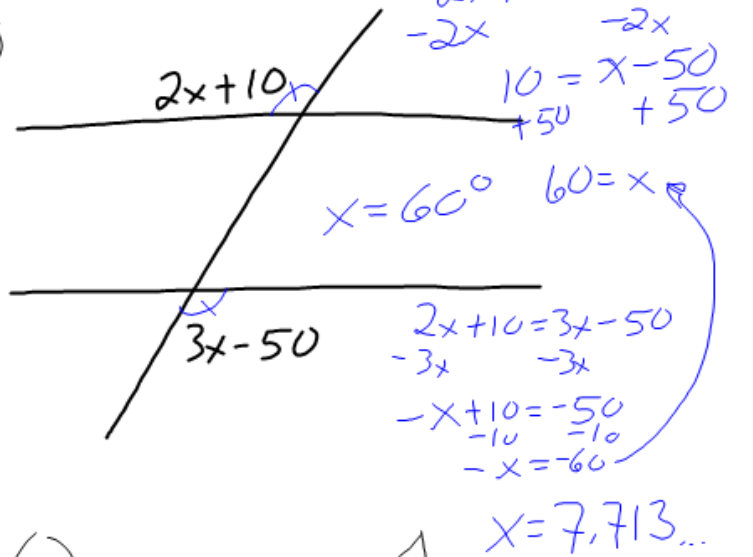
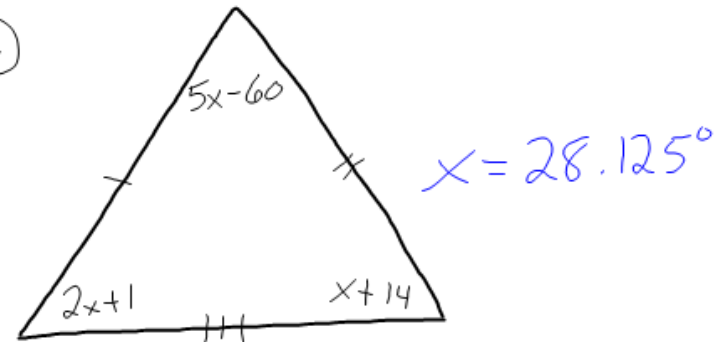


Find x

①



②



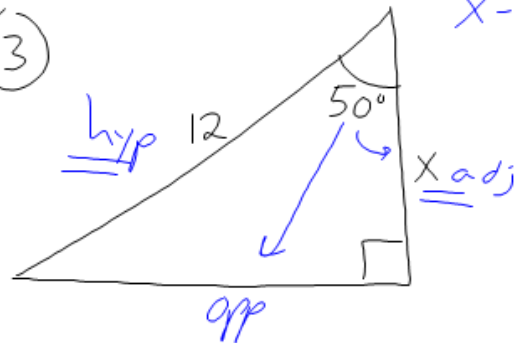
$$(5x-60) + (2x+1) + (x+14) = 180^\circ$$

$$8x - 45 = 180$$

$$8x = 225$$

$$x = 28.125^\circ$$

③

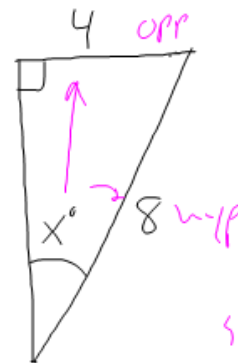


$$\cos 50^\circ = \frac{x}{12}$$

$$x = 12 \cos 50^\circ$$

$$x = 7.713$$

④



$$x = 30^\circ$$

$$\sin x = \frac{4}{8}$$

$$x = \sin^{-1}\left(\frac{1}{2}\right)$$

$x = 30^\circ$

$$\sin \theta = \frac{\text{opp}}{\text{hyp}} = \frac{y}{r}$$

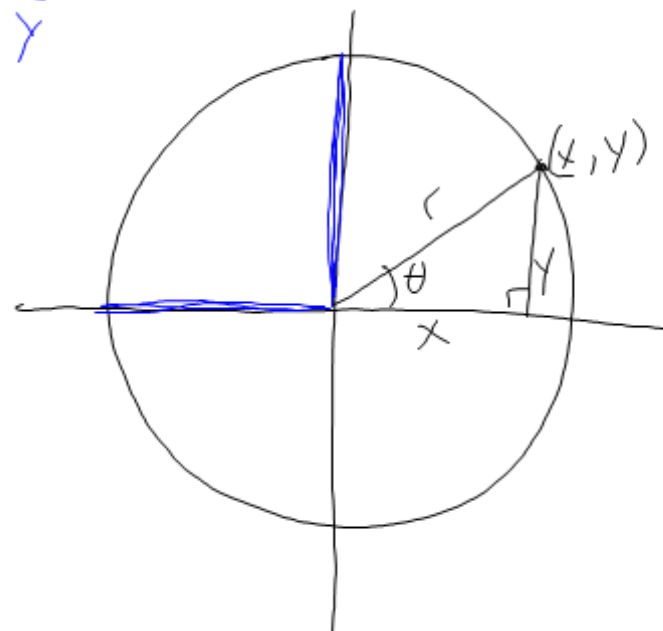
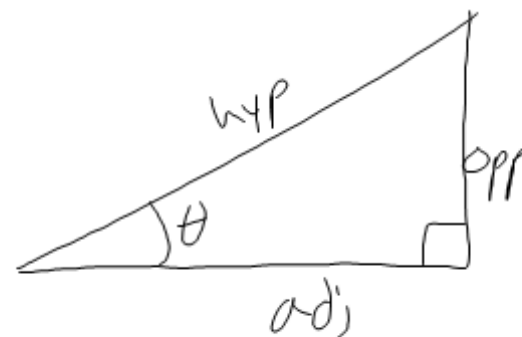
$$\csc \theta = \frac{\text{hyp}}{\text{opp}} = \frac{r}{y}$$

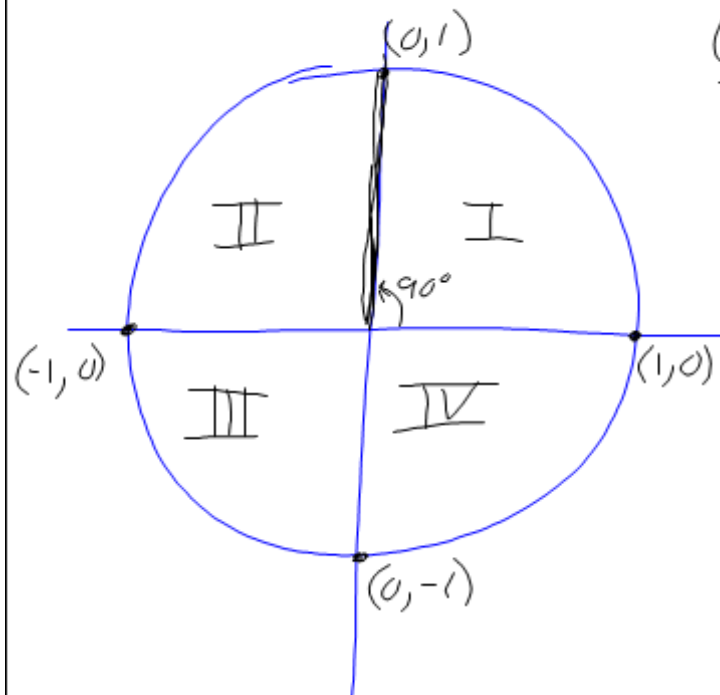
$$\cos \theta = \frac{\text{adj}}{\text{hyp}} = \frac{x}{r}$$

$$\sec \theta = \frac{\text{hyp}}{\text{adj}} = \frac{r}{x}$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}} = \frac{y}{x}$$

$$\cot \theta = \frac{\text{adj}}{\text{opp}} = \frac{x}{y}$$





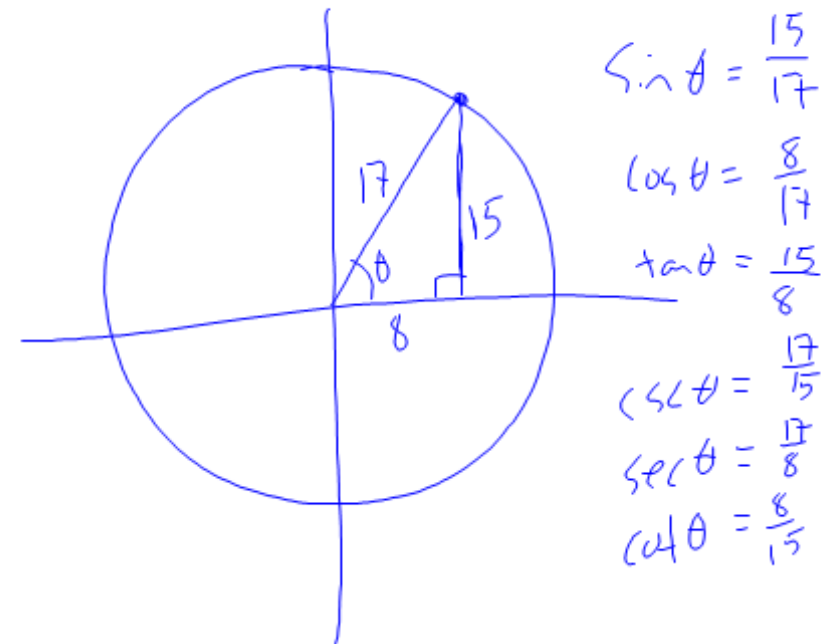
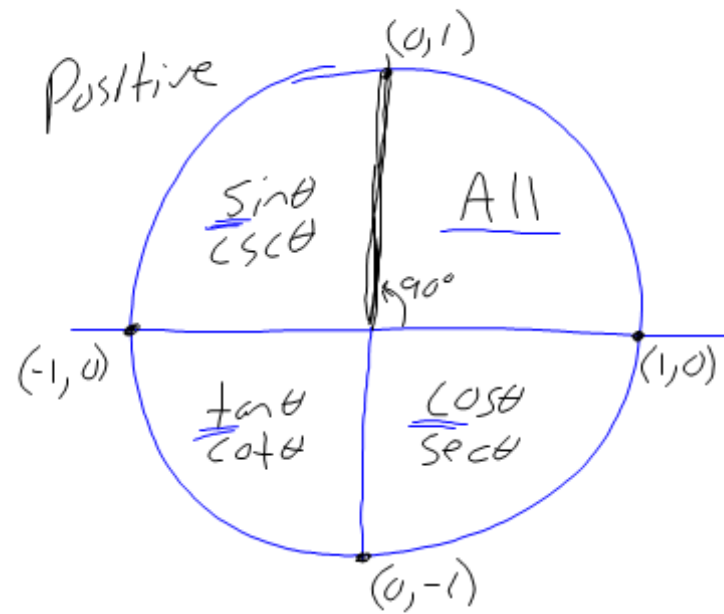
90°	180°	270°
$x=0$	$x=-1$	$x=0$
$y=1$	$y=0$	$y=-1$
$r=1$	$r=1$	$r=1$

0°
$x=1$
$y=0$
$r=1$

Quadrantal Angles

	0° 360°	90°	180°	270°
$\sin \theta$	0	$\frac{1}{1} = 1$	0	-1
$\cos \theta$	1	$\frac{0}{1} = 0$	-1	0
$\tan \theta$	0	$\frac{1}{0} = \text{undef.}$	0	undef.
$\csc \theta$	undef.	1	undef.	-1
$\sec \theta$	1	undef.	-1	undef.
$\cot \theta$	undef.	0	undef.	0

Find the six trig functions
of an angle in standard position
with a terminal side passing
through $(8, 15)$



Find 6 trig. functions of an angle in standard position with a terminal side

(a) passing through the point $(-3, -4)$

$$\sin \theta = -\frac{4}{5}$$

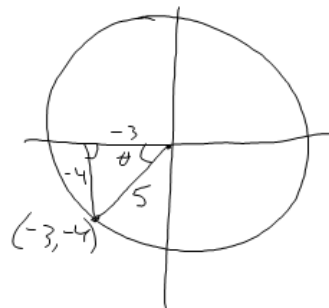
$$\cos \theta = -\frac{3}{5}$$

$$\tan \theta = \frac{4}{3}$$

$$\csc \theta = -\frac{5}{4}$$

$$\sec \theta = -\frac{5}{3}$$

$$\cot \theta = +\frac{3}{4}$$

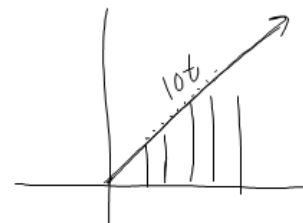
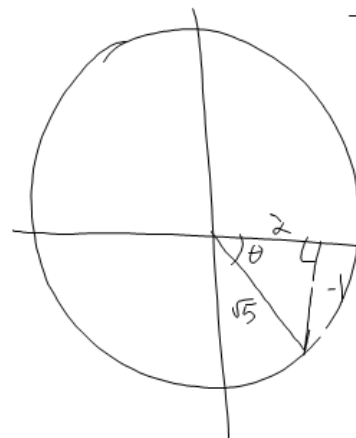


(b) is defined by $x+2y=0$, $x>0$

$$\sin \theta = -\frac{1}{\sqrt{5}} \quad \text{rationalize } y=-1 \quad x=2$$

$$-\frac{1}{\sqrt{5}} \cdot \frac{\sqrt{5}}{\sqrt{5}} = -\frac{\sqrt{5}}{5}$$

$$\frac{2}{4} = \frac{1}{2}$$



$$a^2 + b^2 = c^2$$

$$2^2 + (-1)^2 = (\sqrt{5})^2$$

Concept: 6 trig. functions

$$\sin \theta = \frac{y}{r}$$

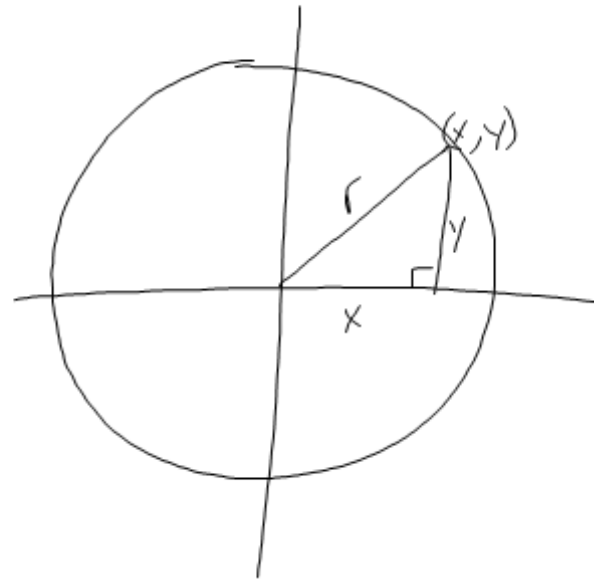
$$\csc \theta = \frac{r}{y}$$

$$\cos \theta = \frac{x}{r}$$

$$\sec \theta = \frac{r}{x}$$

$$\tan \theta = \frac{y}{x}$$

$$\cot \theta = \frac{x}{y}$$



→ To find trig functions through a point, draw on coordinate axes, find hypotenuse, and then find trig. ratios

→ To find ^{6 trig. funct.} if given an equation for terminal side, pick a random x-value, find the y-value, the hypotenuse and use the trig ratios.

Set. 1.3 #5-9, 13, 15-26, 35-42(4), 62